

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

To: SAP AKTIENGESELLSCHAFT IP Department Neurottstr. 16 D-69190 Walldorf GERMANY	SAP AG 02 Juli 2004 Intellectual Property Department
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NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT AND
THE WRITTEN OPINION OF THE INTERNATIONAL
SEARCHING AUTHORITY, OR THE DECLARATIONMS
→ Peth

(PCT Rule 44.1)

Date of mailing
(day/month/year) 02/07/2004

Applicant's or agent's file reference 2003P156WO ✓	FOR FURTHER ACTION See paragraphs 1 and 4 below
International application No. PCT/EP2004/001382 ✓	International filing date (day/month/year) 13/02/2004 ✓
Applicant SAP AKTIENGESELLSCHAFT	

1. The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report; however, for more details, see the notes on the accompanying sheet.

Where? Directly to the International Bureau of WIPO, 34 chemin des Colombettes
1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

- the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
- no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. Reminders

Shortly after the expiration of 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

Within 19 months from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later); otherwise, the applicant must, within 20 months from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of 30 months (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the International Searching Authority European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Ahmed Soliman
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INTRODUCTION TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

What parts of the International application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

When? Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How? Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

NOTES TO FORM PCT/ISA/220 (contd)

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]:
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]:
"Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

"Statement under article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

It must be in the language in which the international application is to be published.

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(a), first sentence).

Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 2003P156WO	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/EP2004/001382	International filing date (day/month/year) 13/02/2004	(Earliest) Priority Date (day/month/year) 01/04/2003
Applicant SAP AKTIENGESELLSCHAFT		
<p>This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.</p> <p>This International Search Report consists of a total of <u>4</u> sheets.</p> <p><input checked="" type="checkbox"/> It is also accompanied by a copy of each prior art document cited in this report.</p>		
<p>1. Basis of the report</p> <p>a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.</p> <p><input type="checkbox"/> The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).</p> <p>b. <input type="checkbox"/> With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.</p> <p>2. <input type="checkbox"/> Certain claims were found unsearchable (See Box II).</p> <p>3. <input type="checkbox"/> Unity of invention is lacking (see Box III).</p> <p>4. With regard to the title,</p> <p><input checked="" type="checkbox"/> the text is approved as submitted by the applicant.</p> <p><input type="checkbox"/> the text has been established by this Authority to read as follows:</p>		
<p>5. With regard to the abstract,</p> <p><input checked="" type="checkbox"/> the text is approved as submitted by the applicant.</p> <p><input type="checkbox"/> the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.</p> <p>6. With regards to the drawings,</p> <p>a. the figure of the drawings to be published with the abstract is Figure No. <u>1</u>.</p> <p><input checked="" type="checkbox"/> as suggested by the applicant.</p> <p><input type="checkbox"/> as selected by this Authority, because the applicant failed to suggest a figure.</p> <p><input type="checkbox"/> as selected by this Authority, because this figure better characterizes the invention.</p> <p>b. <input type="checkbox"/> none of the figures is to be published with the abstract.</p>		

INTERNATIONAL SEARCH REPORT

International Application No

T/EP2004/001382

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 G06F9/45 G06F9/44

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 IPC 7 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 758 160 A (GIBBONS BILL ET AL) 26 May 1998 (1998-05-26)	1-8,11, 12, 15-20, 23-27
Y	abstract column 2, line 13 - line 35 column 3, line 1 - line 30 column 4, line 22 - line 56 column 5, line 14 - line 45 column 5, line 65 - column 6, line 6 column 7, line 40 - line 55 column 10, line 26 - line 38 claims 1-5,12,21-23,28 ----- -/-	9,10,13, 14,21,22

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

& document member of the same patent family

Date of the actual completion of the international search

Date of mailing of the international search report

23 June 2004

02/07/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Tomas Blanch, F

INTERNATIONAL SEARCH REPORT

International Application No

T/EP2004/001382

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 956 513 A (MCALAIN JR JOHN V) 21 September 1999 (1999-09-21)	1-8,11, 12, 15-20, 23-27
Y	the whole document -----	9,10,13, 14,21,22
X	EP 1 202 171 A (HITACHI LTD ;HITACHI SOFTWARE ENG (JP)) 2 May 2002 (2002-05-02)	1-5,11, 16-18, 23-27
A	abstract column 1, line 5 - line 38 column 2, line 8 - line 19 column 2, line 29 - line 52 column 3, line 56 - column 4, line 20 claims 1,2 -----	6-10, 12-15, 19-22
X	US 4 951 192 A (CHASE JR ROBERT P ET AL) 21 August 1990 (1990-08-21)	1,5,8, 11,12, 15,16,20
Y	abstract claims 1-4,10-13	9,10,13, 14,21,22
A		2-4,6,7, 17-19, 23-27
Y	CHASE R P JR ET AL: "Parallel building: experience with a CASE system for workstation networks" COMPUTER WORKSTATIONS, 1988., PROCEEDINGS OF THE 2ND IEEE CONFERENCE ON SANTA CLARA, CA, USA 7-10 MARCH 1988, WASHINGTON, DC, USA,IEEE COMPUT. SOC. PR, US, 7 March 1988 (1988-03-07), pages 2-11, XP010011374 ISBN: 0-8186-0810-2 the whole document -----	9,10,13, 14,21,22
A	US 5 854 932 A (SPALDING DANIEL R ET AL) 29 December 1998 (1998-12-29)	8-10, 12-14, 20-22
	the whole document -----	
A	PER CEDERQVIST ET AL: "Version Management with CVS" SIGNUM SUPPORT AB, 'Online! 1993, XP002199439 Retrieved from the Internet: URL: http://www.loria.fr/{molli/cvs/doc/cvs.ps > 'retrieved on 2002-05-21! the whole document -----	1-27

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

T/EP2004/001382

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 5758160	A	26-05-1998	AU CA CN DE EP JP WO	6018794 A 2144874 A1 1105802 A 69406113 D1 0688448 A1 8512152 T 9500901 A1		17-01-1995 05-01-1995 26-07-1995 13-11-1997 27-12-1995 17-12-1996 05-01-1995
US 5956513	A	21-09-1999		NONE		
EP 1202171	A	02-05-2002	JP EP	2002082811 A 1202171 A2		22-03-2002 02-05-2002
US 4951192	A	21-08-1990	CA	1302578 C		02-06-1992
US 5854932	A	29-12-1998		NONE		

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference see form PCT/ISA/220		FOR FURTHER ACTION See paragraph 2 below
International application No. PCT/EP2004/001382	International filing date (day/month/year) 13.02.2004	Priority date (day/month/year) 01.04.2003
International Patent Classification (IPC) or both national classification and IPC G06F9/45, G06F9/44		
Applicant SAP AKTIENGESELLSCHAFT		

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

01.04.2003

+22 01.02.2005

Name and mailing address of the ISA:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 TX: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Tomàs Blanch, F Telephone No. +31 70 340-1918	
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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/EP2004/001382

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - a sequence listing
 - table(s) related to the sequence listing
 - b. format of material:
 - in written format
 - in computer readable form
 - c. time of filing/furnishing:
 - contained in the international application as filed.
 - filed together with the international application in computer readable form.
 - furnished subsequently to this Authority for the purposes of search.
3. In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/EP2004/001382

**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or
industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-27
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-27
Industrial applicability (IA)	Yes: Claims	1-27
	No: Claims	

2. Citations and explanations

see separate sheet

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.
PCT/EP2004/001382

1. The following documents (D1 and D2) are referred to in this communication:

D1: US-A-5758160 (GIBBONS BILL ET AL)
D2: CHASE R P JR ET AL: 'Parallel building: experience with a CASE system for workstation networks' (XP010011374)

2. To the extent that the subject-matter of claims 1-27 can be understood it does not appear to involve an inventive step under Article 33(3) PCT.

2.1. The following features of independent claim 1 are explicitly disclosed by document D1, which is considered to represent the closest prior art (the references in parentheses apply to this document):

- a computer system (cf. abstract);
- a source file repository ("a *database*") (cf. abstract; column 4, lines 17-56);
- said repository storing a plurality of active source files ("the *database persistently stores and retrieves the components and their properties*") (cf. column 4, lines 30-33);
- said source files belonging to a component ("a *component is composed of a set of properties*") (cf. column 4, lines 22-27);

The additional feature of a central compilation service compiling the component is implicitly disclosed by document D1.

The system of claim 1 differs from that of document D1 in that said compilation takes place upon receiving an activation request, whereas in document D1 the components are compiled when a state flag "NeedToCompile" is assigned to them.

The effect of this difference is that there is an optimisation of system resources by avoiding compilation of components even if no source files have been changed.

The problem to be solved may therefore be regarded as how to reduce the waste of resources by only compiling the components when required. Nevertheless, said problem is solved by assigning state flags to the components indicating the need of compilation, as shown in D1.

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.
PCT/EP2004/001382

The system of claim 1 further differs from that of D1 in that after a successful compilation the at least one inactive source file is transferred to the plurality of active source files.

The effect of this difference is that a track of the need of compilation is kept for every source file. Nevertheless, the same result is achieved by changing the state flag of said component from "*NeedToCompile*" to "*Compiled*" when the compilation is successful.

As a consequence, claim 1 is not allowable under Article 33(1) PCT for lack of inventive step of its subject-matter (Article 33(3) PCT).

2.2. The system of dependent claim 2 of the present application differs from that of D1 in that the transfer of each inactive source file depends on a change mode selected from the group of *adding*, *deleting* or *replacing*, whereas in document D1 a state flag is assigned to the files after a successful compilation.

The effect of this difference is an alternative way of keeping track of the files that need to be compiled.

However, moving files from one directory to another is a well-known alternative to changing state flags (e.g. in many operating systems, flagging files as deleted or moving said files to a trash folder are well-known equivalents).

As a consequence, the subject-matter of dependent claim 2 does not involve any inventive step in the sense of Article 33(3) PCT.

The same objection is raised in respect of the use of a further file repository for the inactive source files described in dependent claim 4, which is thus not allowable under Article 33(1) PCT for lack of inventive step of its subject-matter (Article 33(3) PCT).

2.3. The additional feature of claim 3, consisting of the computer system further comprising a storage area (*Runtime Archive Storage*) to store the compilation results, appears to be a standard design choice for the skilled person.

As a consequence, the subject-matter of dependent claim 3 does not involve any

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.
PCT/EP2004/001382

inventive step in the sense of Article 33(3) PCT.

2.4. The subject-matter of dependent claim 5 of the present application concerns the case of notifying the changer of said inactive source file in case the compilation of the component fails.

This feature is also disclosed by document D1 (cf. column 5, line 65 - column 6, line 7; claim 12).

As a consequence, the subject-matter of dependent claim 5 does not involve any inventive step in the sense of Article 33(3) PCT.

2.5. The subject-matter of dependent claim 6 of the present application is also disclosed by document D1.

The component status "*ready*" described in claim 6 when the compilation is successful corresponds to the status "*Compiled*" of document D1. And the component status "*broken*" described in claim 6 when the compilation fails corresponds to the status "*CompileError*" of document D1.

As a consequence, the subject-matter of dependent claim 6 does not involve any inventive step in the sense of Article 33(3) PCT.

2.6. Additionally, dependent claim 7 of the present application concerns the case of assigning a "*dirty*" status to a further component that depends on the component being compiled when said compilation is successful.

The effect of this feature is the propagation of the need of compilation due to dependencies among the different components.

The problem to be solved may therefore be regarded as how to propagate the need of compilation when existing dependencies among different components.

Nevertheless, the use of a "*dirty*" flag is a well known-solution to said problem (e.g. in *Make* and *Build* systems).

As a consequence, the subject-matter of claim 7 does not involve any inventive step

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.
PCT/EP2004/001382

in the sense of Article 33(3) PCT.

2.7. The subject-matter of dependent claim 8 concerns the case where the central compilation service performs an incremental build.

This feature is also disclosed by document D1 (cf. column 2, lines 29-60).

The additional feature of claim 8, consisting of using a component dependency evaluator to determine the dependencies among the components is also disclosed by document D1 (cf. column 3, lines 19-30; column 4, lines 45-56; column 5, lines 14-29; claim 1).

As a consequence, the subject-matter of dependent claim 8 of the present application does not involve any inventive step under Article 33(3) PCT.

2.8. The system of claim 9 differs from that of document D1 in that the central compilation service performs a parallel build by evaluating dependencies.

The effect of this difference is an acceleration of the compilation process and a distribution of tasks.

The problem to be solved may therefore be regarded as how to speed up the compilation of components. Nevertheless, the use of a parallel mechanism to solve said problem is a common solution in the art, as shown in document D2 (cf. the whole document).

As a consequence, the subject-matter of dependent claim 9 does not involve any inventive step in the sense of Article 33(3) PCT.

2.9. The subject-matter of dependent claim 10 concerns the case of using a cluster of build computers to perform said parallel build.

However, using more than one computer in parallel appears to be a standard design choice for the skilled person.

As a consequence, the subject-matter of dependent claim 10 does not involve any inventive step in the sense of Article 33(3) PCT.

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.
PCT/EP2004/001382

2.10. The subject-matter of independent claim 11 of the present application corresponds in terms of central compilation service features to that of claim 5. The objections raised in respect of this latter claim also apply, *mutatis mutandis*, to claim 11, which is thus not allowable under Article 33(1) PCT for lack of inventive step of its subject-matter under Article 33(3) PCT.

2.11. The subject-matter of dependent claims 12-14 of the present application corresponds in terms of central compilation service features to that of claims 8-10, respectively. The objections raised in respect of these latter claims also apply, *mutatis mutandis*, to claims 12-14, which are thus not allowable under Article 33(1) PCT for lack of inventive step of their subject-matter under Article 33(3) PCT.

2.12. The subject-matter of independent claim 15 of the present application concerns a computer comprising a service according to the central compilation service described in any of the claims 11-14.

As a consequence, independent claim 15 does not involve any inventive step under Article 33(3) PCT.

2.13. The subject-matter of independent claim 16 of the present application corresponds in terms of method features to that of claim 5. The objections raised in respect of this latter claim also apply, *mutatis mutandis*, to claim 16, which is thus not allowable under Article 33(1) PCT for lack of inventive step of its subject-matter under Article 33(3) PCT.

2.14. The subject-matter of dependent claims 17, 18, 19, 20, 21 and 22 of the present application corresponds in terms of method features to that of claims 2, 3, 6 and 7, 8, 9 and 10, respectively. The objections raised in respect of these latter claims also apply, *mutatis mutandis*, to claims 17 to 22, which are thus not allowable under Article 33(1) PCT for lack of inventive step of their subject-matter under Article 33(3) PCT.

2.15. The subject-matter concerned by independent claim 23 of the present application appears to be merely an aggregation or juxtaposition of different features (in the form of method steps) which are known or obvious for the skilled person.

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.
PCT/EP2004/001382

It appears that the interactions of said individual features do not produce any synergistic effect; in particular, it is not clear how the individual method steps, when combined together, lead to a result of a method for validating software.

As a consequence, the subject-matter of claim 23 does not involve any inventive step in the sense of Article 33(3) PCT (see the Guidelines, C-IV, 9.5).

2.16. The subject-matter of dependent claim 24 concerns the case of deploying the new compilation result to a local runtime for test purposes.

When validating software, the skilled person would consider this additional feature as a standard design choice.

As a consequence, the subject-matter of dependent claim 24 does not involve an inventive step in the sense of Article 33(3) PCT.

The same objection is raised in respect of dependent claims 25 and 26, which concern the cases of making available the result of the central compilation in a storage area (namely the *Runtime Archive Storage*) and storing an error result and making it available in case an error occurs during the central compilation, respectively.

As a consequence, the subject-matter of dependent claims 25 and 26 does not involve an inventive step in the sense of Article 33(3) PCT.

2.17. The subject-matter of independent claim 27 of the present application concerns a computer configured to execute the method steps described in claims 23 or 24.

As a consequence, independent claim 27 does not involve any inventive step under Article 33(3) PCT.

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